

IN THE CLAIMS:

1-23. (Canceled)

24. (New) A method of identifying products that inhibit an ATP-dependent DNA relaxing reaction comprising contacting a test sample with a topoisomerase IV, wherein the topoisomerase IV is capable of being obtained from the expression of a nucleotide sequence chosen from:

(a) all or part of the gr1A gene (SEQ ID NO:4) or all or part of the gr1B gene (SEQ ID NO:6);

(b) sequences hybridizing with all or part of the gr1A gene (SEQ ID NO:4) or gr1B gene (SEQ ID NO:6) that encode a subunit of a topoisomerase IV; and

(c) sequences derived from the sequences of (a) or (b) because of the degeneracy of the genetic code; and

wherein the topoisomerase IV exhibits the enzymatic activity of Gr1A (SEQ ID NO: 3) or Gr1B (SEQ ID NO:5).

25. (New) A method for identifying products that inhibit the reaction of decatenation of catenanes of DNA comprising contacting a test sample with a topoisomerase IV, wherein the topoisomerase IV is capable of being obtained from the expression of a nucleotide sequence chosen from:

(a) all or part of the gr1A gene (SEQ ID NO:4) or all or part of the gr1B gene (SEQ ID NO:6);

(b) sequences hybridizing with all or part of the gr1A gene (SEQ ID NO:4) or gr1B gene (SEQ ID NO:6) that encode a subunit of a topoisomerase IV; and

(c) sequences derived from the sequences of (a) or (b) because of the degeneracy of the genetic code; and
wherein the topoisomerase IV exhibits the enzymatic activity of Gr1A (SEQ ID NO: 3) or Gr1B (SEQ ID NO:5).

26. (New) The method of claim 24, wherein the topoisomerase IV has the behavior of a primary target towards the fluoroquinolones.

27. (New) The method of claim 25, wherein the topoisomerase IV has the behavior of a primary target towards the fluoroquinolones.

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